

# The Camera With The All-Embracing System

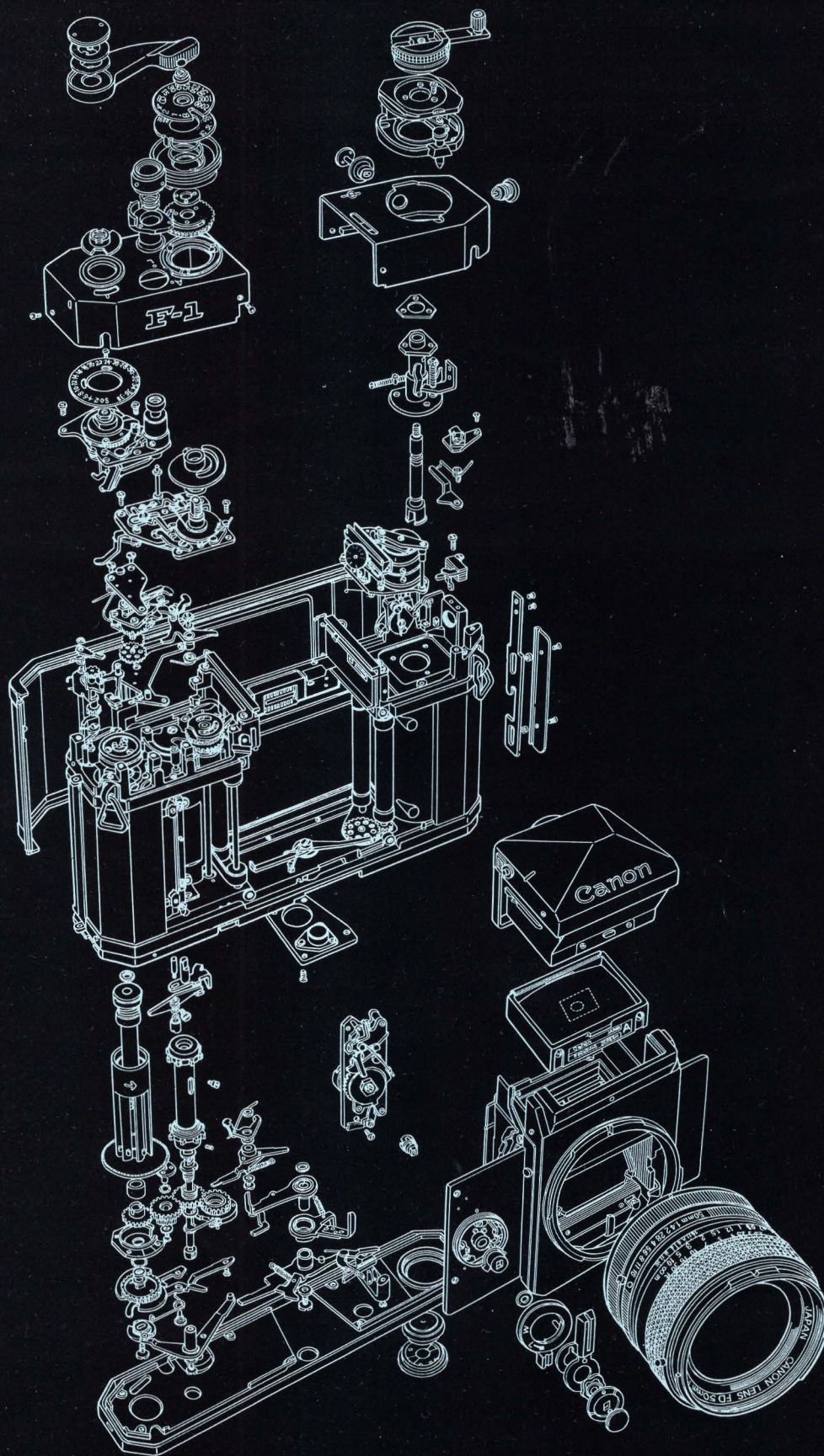
**Canon**  
**F-1**

English Edition

Motor Drive Unit   Film Chamber 250   Servo EE Finder   Booster T Finder  
Motor Drive MF   High Speed Motor Drive Camera   FD Lenses









# Ten Thousand Parts Was The Starting Point

Science and technology in our times are constantly creating new challenges to human activity in every field, and with this reality in mind Canon set out to develop a camera capable of setting up a photographic system so complete and so comprehensive that it could stand out as a remarkable achievement in the industry for many a year.

Since its recognition at the 1970 Photokina in Cologne, the Canon F-1 has gradually come to be accepted everywhere as the finest and most complete system camera, an entirely new type of SLR capable of assimilating new discoveries in optics and precision technology in order to be always in the lead, expanding ever more the possibilities of photography.

A camera with ten thousand parts is quite a beginning for a system, but it becomes an even more impressive fact when we consider that it was all conceived in such a way as to constantly adopt new technological developments and to ensure the applicability of new scientific breakthroughs to an incessant improvement and advancement of the system created around it.

When you take a look at the list of accessories and attachments that have already been developed for the F-1, you come to understand why it is being used for all kinds of photography and for all kinds of purposes. From the camera hobbyist who settles for nothing but the very best all the way to the most highly scientific research laboratory, the F-1 is a permanent source of satisfaction and success, an instrument of joy and flawless reliability which enables the user to go beyond the photographic possibilities known to him before acquiring Canon's outstanding camera.

The conventional 35mm camera has approximately one thousand parts, and yet the F-1's ten thousand have all been conceived, designed, manufactured and tested to fulfill the strictest standards of precision and excellence, and this accounts for the perfect interchangeability of all the components of the system, whether they be lenses, viewfinders, focusing screens, metering instruments, power sources, filters, film chambers, or any of the almost interminable list of astonishingly precise and resourceful items the F-1 system includes.

Now, one of the main aspects of any camera system is the number of interchangeable lenses, their capabilities, ease of operation and replacement, and the applications of their optical qualities.

Canon takes pride in the fact that as the years go by the F-1 system continues to expand in the very sense it was intended to from the very beginning.

A camera destined to march ahead in man's endeavour to create more perfect and more embracing tools for the photographic needs of the future, from the airborne photographs for research in outer space to the always wonderful snapshot of a child at play, the Canon F-1 will go on following the same path, as the camera which can perform any kind of photography the human mind can think of.







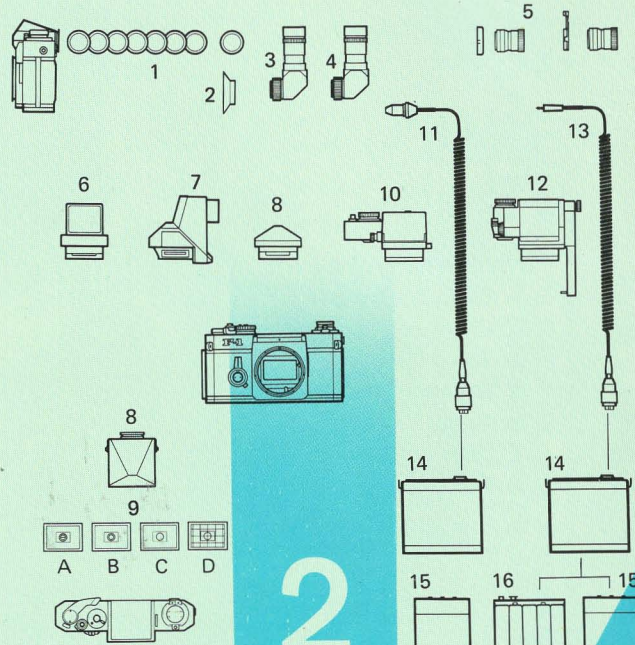
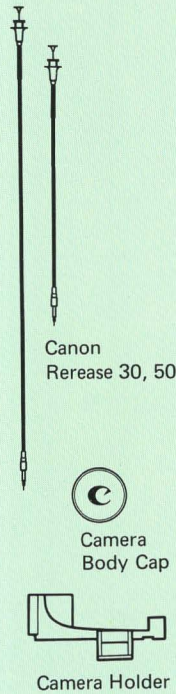
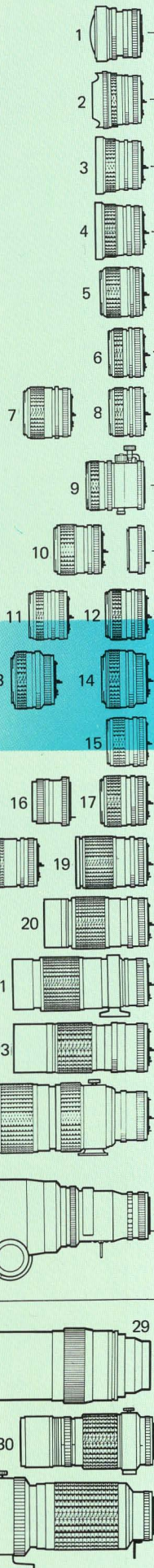
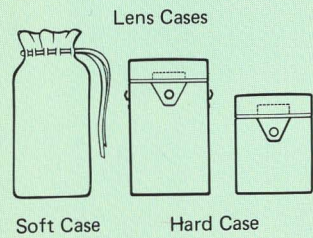
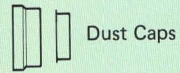
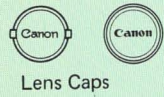
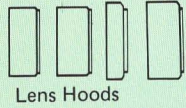
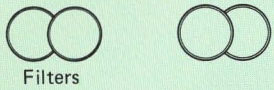
## The Main Parts of the F-1

1. Flash Socket
2. Focusing Ring
3. Servo EE Finder Coupling Socket
4. Bayonet Ring for Cap and Hood
5. Aperture Ring
6. Canon Breech-Lock Ring
7. Stopped-down /Self-Timer Lever
8. Film Speed Set Ring
9. Film Speed Scale
10. Time Lock/Shutter Lock Lever
11. Frame Counter
12. Accessory Shoe
13. Contact for Flash Unit
14. Safety Stopper
15. Contact for Flash-Auto Control
16. Film Rewind Crank
17. Film Plane Indicator
18. Light-Taking Window for Meter Information
19. Viewfinder Release Button
20. Distance Scale
21. Eye-Level Finder
22. Shutter Speed Dial
23. Guide Pin
24. Shutter Speed Coupling Pin
25. Film Advance Lever
26. Shutter Button
27. Meter Switch
28. Back Cover
29. Eyepiece Ring
30. Eyepiece
31. Tripod Socket
32. Back Cover/Film Chamber Attaching Guide Groove
33. Contacts for Controlling Motor Drive
34. Battery Compartment
35. Film Rewind Button
36. Film Winding Coupler for Motor Drive Unit
37. Bottom Cover Safety Stopper
38. Eyecup
39. Lever Lock/Mirror Lock Lever
40. Stopped-down Coupling Lever
41. Lens Speed Adjustment Pin
42. Aperture Signal Coupling Lever
43. Hood
44. EE Lock Pin

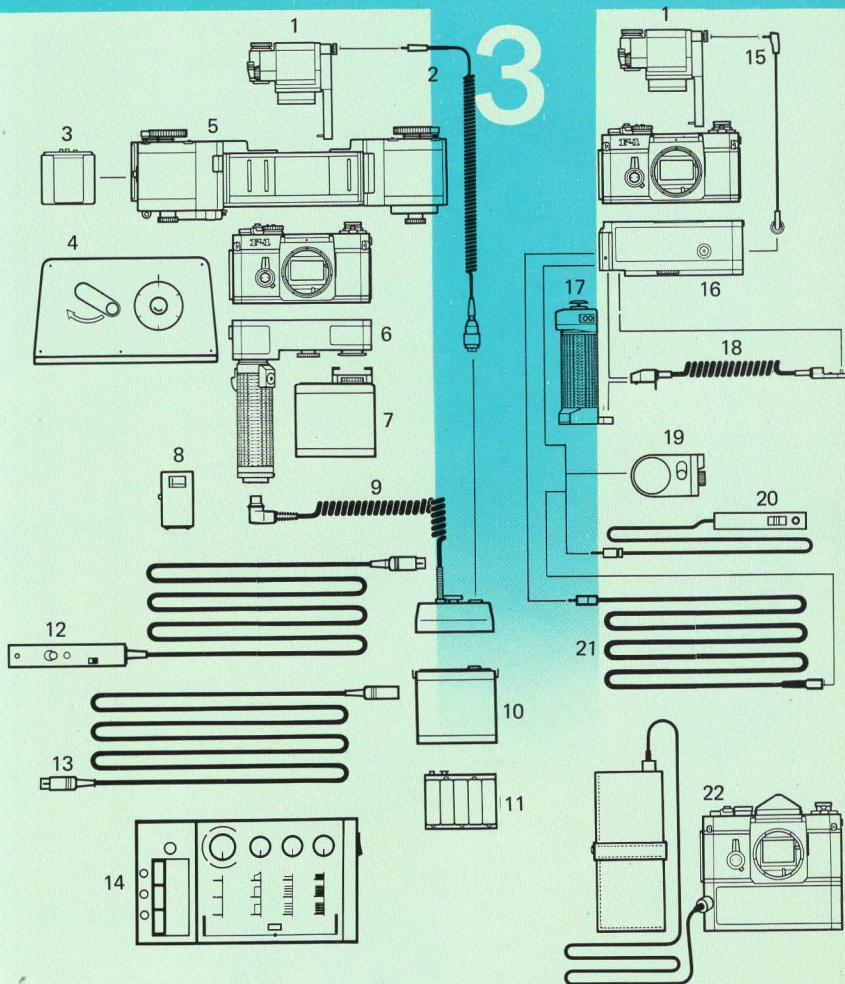




# Canon F-1 SYSTEM



Canon F-1





## Canon F-1... with Ultra Wide Versatility

### 1. Lenses

1. Fish-eye 7.5mm f/5.6 S.S.C.
2. Fish-eye FD 15mm f/2.8 S.S.C.
3. FD 17mm f/4 S.S.C.
4. FD 20mm f/2.8 S.S.C.
5. FD 24mm f/2.8 S.S.C.
6. FD 28mm f/3.5 S.C.
7. FD 35mm f/3.5 S.C.
8. FD 35mm f/2 S.S.C.
9. TS 35mm f/2.8 S.S.C.
10. FD 50mm f/3.5 Macro S.S.C. w/Life Size Adapter
11. FD 50mm f/1.8 S.C.
12. FD 50mm f/1.4 S.S.C.
13. FD 55mm f/1.2 S.S.C.
14. FD 55mm f/1.2 S.S.C. ASPHERICAL
15. FD 85mm f/1.8 S.S.C.
16. FL 100mm f/4
17. FD 100mm f/2.8 S.S.C.
18. FD 135mm f/3.5 S.C.
19. FD 135mm f/2.5 S.C.
20. FD 200mm f/4 S.S.C.
21. FD 300mm f/5.6 S.C.
22. FD 35-70mm f/2.8-3.5 S.S.C.
23. FD 100-200mm f/5.6 S.C.
24. FD 85-300mm f/4.5 S.S.C.
25. Focusing Unit
26. FL 400mm f/5.6
27. FL 600mm f/5.6
28. FL 800mm f/8
29. FL 1200mm f/11 S.S.C.
30. FL 300mm f/5.6 FLUORITE
31. FL 500mm f/5.6 FLUORITE
- FL 300mm f/2.8 S.S.C. FLUORITE is available by special order.

### 2. Viewfinders

1. Dioptic Adjustment Lenses R
2. Eye Cup 3R
3. Angle Finder A2
4. Angle Finder B
5. Magnifier R
6. Waist-Level Finder
7. Speed Finder
8. Eye-Level Finder
9. Focusing Screen A,B,C,D
10. Booster T Finder
11. Cord 6V 2B
12. Servo EE Finder
13. Cord 12V 2E
14. Battery Case
15. Battery Magazine 12V
16. Battery Magazine 15V

### 3. Motor Drive and Unmanned Photography

1. Servo EE Finder
2. Cord 12V 2E
3. Film Magazine 250
4. Film Leader 250
5. Film Chamber 250
6. Motor Drive Unit
7. Battery Case D
8. Battery Checker MD
9. Battery Connector MD
10. Battery Case
11. Battery Magazine 15V
12. Remote Switch MD
13. Extension Cord MD
- \*14. Time Lapse Programmer
15. Connecting Cord MF for Servo EE Finder
16. Motor Drive MF
17. Grip MF
18. Connecting Cord for Grip MF

### 19. Interval Timer L

20. Remote Switch 60 MF
21. Extension Cord E 1000
22. High Speed Motor Drive Camera

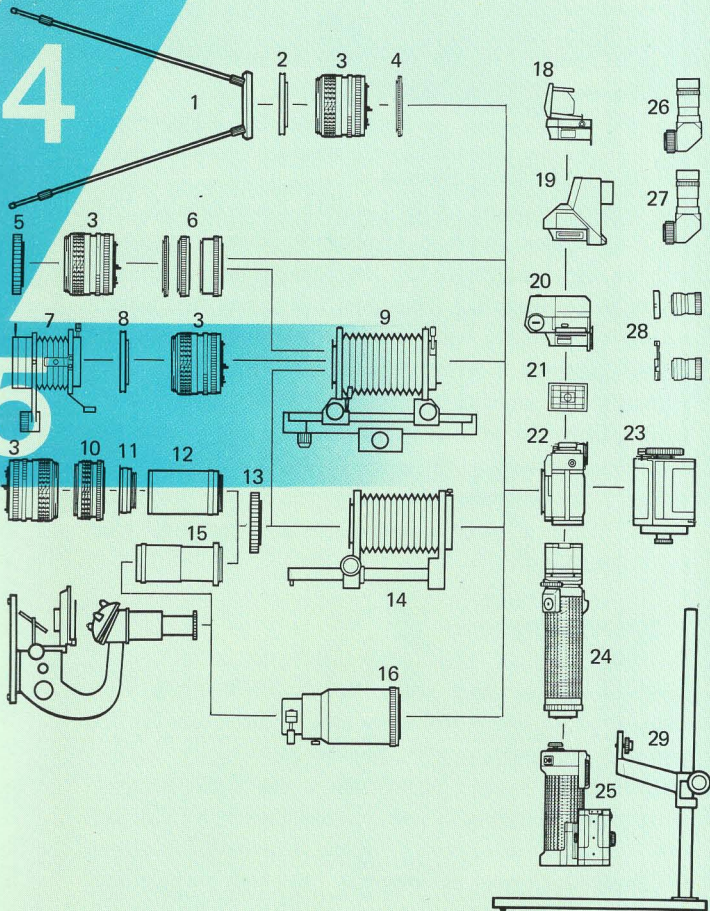
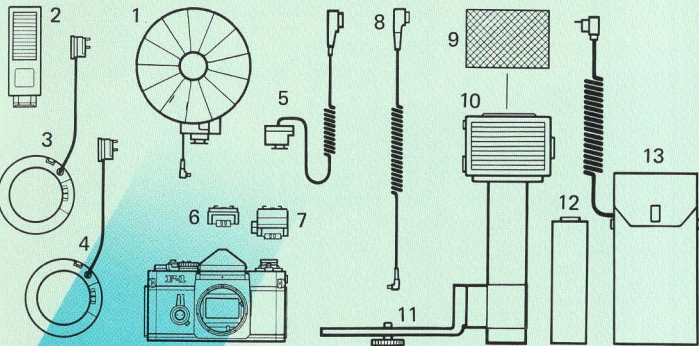
\* Available by special order.

### 4. Flash Photography

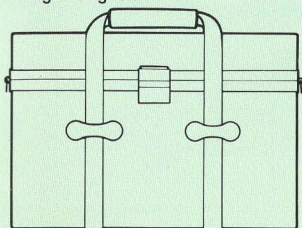
1. Flash V-3
2. Speedlite 133D
3. Flash-Auto Ring A<sub>2</sub>
4. Flash-Auto Ring B<sub>2</sub>
5. Synchro Cord C
6. Flash Coupler D
7. Flash Coupler L
8. Synchro Cord S
9. Wide Mirror
10. Speedlite 500A
11. One Touch Bracket S
12. Battery Magazine S
13. Laminated Battery Pack S

### 5. Close-Up, Macrophotography and Photomicrography

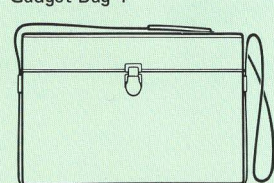
1. Handy Stand F
2. Handy Stand Attachment
3. FD 50mm f/1.4 S.S.C. Lens
4. Extension Tube M 5
5. Close-up Lens 55mm, 240mm, 450mm
6. Extension Tube M 5, M 10, M 20
7. Slide Duplicator
8. Slide Duplicator Attachment
9. Bellows FL
10. Macrophoto Coupler FL 55
11. Lens Mount Converter B
12. Extension Tube
13. Lens Mount Converter A
14. Bellows M
15. Microphoto Hood
16. Photomicro Unit F
17. Photo Oscilloscope Unit
18. Waist-Level Finder
19. Speed Finder
20. Booster T Finder
21. Focusing Screen D
22. F-I Body
23. Film Chamber 250
24. Motor Drive Unit
25. Motor Drive MF
26. Angle Finder A<sub>2</sub>
27. Angle Finder B
28. Magnifier R
29. Copy Stand 4



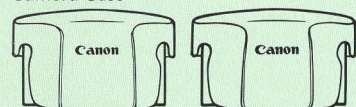
Gadget Bag G1



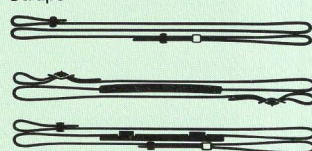
Gadget Bag 4



Camera Case



Straps





# Features

The Canon F-1 can be used with more than 50 different kinds of interchangeable lenses and over 180 accessories and was developed with the following targets in mind:

1. Complete interchangeability with all its accessories.
2. Development of high performance accessories through adoption of electronic techniques and new scientific discoveries.
3. Integrated development, by means of computers, of a series of top quality FD lenses and special lenses.
4. Guaranteed excellence for any type of photographic situation.

The Canon F-1 system can use all the accessories of the Canon FT QL and the Canon Pellix QL systems, and this was so planned in order to allow Canon users to profit as much as possible from equipment they had already acquired.

## Durability with High Precision

The Canon F-1 body, as well as everything else in the system, was checked in all aspects to the minutest detail, including performance, accuracy, durability, interchangeability, manipulation, design, production and quality control.

Basic studies, such as material analysis before designing, were extensively conducted and only materials of the highest quality were used.

The various mechanical parts have two to three times the strength to withstand even the roughest use, and environmental tests included vibration, shock and operation for extended periods in temperatures between 60°C (140°F) and -30°C (-22°F). Durability testing was conducted on the camera body alone and together with the Motor Drive Unit for 100,000 exposures. These standards are unusually high for any type of camera.

## Designed from the Standpoint of Users

The Canon F-1's body, interchangeable lenses and all other accessories and units were designed after prolonged studies and research of the best ways to adapt a photographic system to the anatomical limitations and requirements of the user, and to make it as easy and comfortable as possible. Besides, the Canon F-1 operates with both the specially-designed high-performance FD lenses and with the conventional FL series of lenses.

## 1/2000 Second Shutter Speed Reliable for 100,000 Exposures

The focal plane shutter of the Canon F-1 has an extremely fast 1/2000 second shutter speed, greater exposure accuracy thanks to a faster shutter screen, and increased durability because it uses a metallic shutter screen. This shutter mechanism of matchless quality will be reliable for at least 100,000 exposures. The shutter speed of 1/2000 second now makes habitual use of high speed film possible as for high speed photography in shooting sports events.



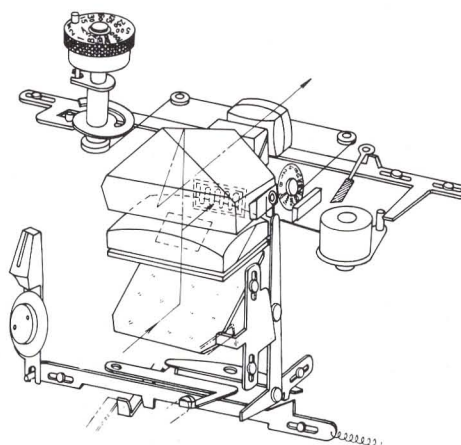
## Perfect TTL Metering System

The metering system of the Canon F-1 is a versatile TTL metering system with a mechanism that transmits a variable signal, correlated to the development of the FD lenses and accessories. The focal plane metering measures the best quality light beam of the focal plane at the closest possible position. It is the ideal system for immediately metering the condition of the subject at the focal plane. It assures accurate automatic metering compensation even if the speed of the lens used changes, so that it is not necessary to adjust the setting of the lens speed. Metering error is negligible as a result of ideal light distribution.

## Full-Aperture Metering

On the basis of the focal plane metering system, exposure settings and compensation mechanisms were adopted as signals in the body and in the lenses for the optimum full-aperture metering system.

This metering system begins where the highly accurate focal plane metering system of the Canon FT QL left off. It is an almost perfect full aperture metering system in combination with FD lenses and the high performance CdS photocell.





**Stopped-Down Metering**

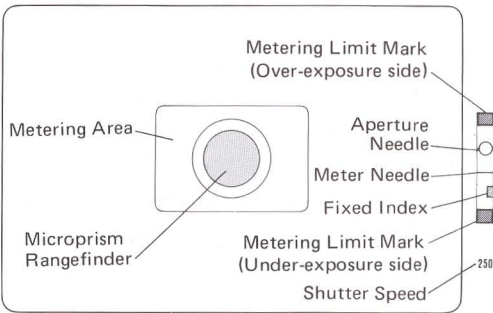
Besides the FD lenses,stopped-down metering can also be performed at the same high level of exposure accuracy, using the FL and R series of lenses.

**Meter Information**

Focusing screen readings and meter readings can be observed inside the viewfinder. The meter reading mechanism includes: meter needle and aperture needle, improper exposure warning marks, stopped-down metering, battery check mark, shutter speed scale, and warning that it is beyond the range of meter coupling.

**Meter Reading**

All necessary meter information can be read through the interchangeable viewfinder. A small prism is fixed to a side of the pentaprism to lead light through the light-taking window located at the top of the camera body. The angle and pitches of the microprism were based upon studies of the way the human eye works. The reflecting ratio of the beam-splitting mirror in the condenser has been reduced to 70% of that of the FT QL model. The light transmission factor has been increased by means of a highly sensitive CdS photocell.

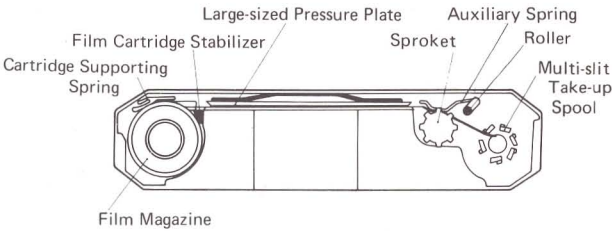


**High-Precision Mount Construction**

To make sure that focusing will always be accurate, the lens mount has been ideally positioned where strain does not occur. Care also has been taken to eliminate possibility of damage to the mount surface during mounting in the interest of durability and to preserve its high precision unaltered.

**Film Plane Stabilizer**

An important factor in obtaining superior quality pictures is keeping the film flat always. In the Canon FT QL, the film advancing mechanism, pressure plate, roller, and accuracy of the aperture section have been highly praised all over the world. In addition to these outstanding features, a larger pressure plate and a cassette safety device were incorporated in the Canon F-1 to guarantee that the film is kept flat in such a way as befits the F-1.



**Smooth Winding Mechanism**

Gear trains in the winding mechanism have been reduced to the minimum to ensure smooth and trouble-free winding and frame advance operations. It can operate continuously in temperatures below zero.

**Versatile Interchangeable Viewfinder Units**

All important information has been incorporated in the viewfinder. In addition, a full set of interchangeable viewfinder units has increased the versatility of the camera.



# Motor Drive Unit / Film Chamber 250



Motor Drive Unit



Film Chamber 250





## SPEED AND AUTOMATION

The Canon Motor Drive Unit with a built-in timer was developed simultaneously with the F-1 camera to ensure its complete interchangeability. The unit can be easily and quickly attached to the F-1 for all kinds of purposes.

Its two motors for film winding and shutter release guarantee the most reliable performance. It also has a built-in intervalometer.

Both single frame and continuous photography are possible, with seven different intervals, from 3 frames per second to 1 frame per minute, a wide range from high-speed photography for action analysis to photography for recording experiments. It is possible to shoot for more than 4 hours at 1 frame per minute with long-roll film of 250 frames which can be used with the Film Chamber 250 and automatically stops when film is finished.

The Servo EE Finder is available so that the unit can be left without attendance during long-time photography. With a built-in wide range timer, this Motor Drive enables you to perform continuous photography with any shutter speed except "B".

By means of the Remote Switch MD or the lockable cable release, unmanned EE photography is possible when used together with the Servo EE Finder.

## AS MUCH FILM AS YOU NEED

The need for a constant supply of film under conditions that leave no room for safe quick loading led Canon to the development of one of the most remarkably accurate long-roll film feed mechanisms.

Just as the Motor Drive made high speed photography and the use of timers possible, together with the system of viewfinders, the Film Chamber 250 allows you to take 250 frames continuously. This is a very useful feature when recording documents in large quantities. Thus, the range of high speed photography and timers can be extended more and more. For copying large amounts of documents, recording experiments, and coverage of news and sports, this film chamber proves an extremely valuable asset.

To mount on the camera, you only have to put it in place of the back cover of the F-1 and it will be connected to the Motor Drive by means of a contact that couples directly, and the winding mechanism will be coupled, too. One of the basis of Canon's design policy, is that interchangeability must be perfect, as it is in this unit, and safety devices are provided to control any error of operation in the various mechanisms.

Its operation is entirely trouble-free. It stops automatically when the film ends.



**Japanese Cranes in the Sunset**  
Canon F-1, FD 300mm f/5.6 S.C. with Motor Drive Unit, 1/125 of a second, at f/5.6, ASA 64.



# Servo EE Finder / Booster T Finder

Servo EE Finder



Booster T Finder





### THE SERVO EE FINDER

Besides the F-1's standard viewfinder, in order to cope with all kinds of situations and requirements, Canon has developed other viewfinders for a more embracing range of photographic possibilities.

The Servo EE Finder is a viewfinder provided with an automatic exposure control which works by means of an electronic circuit powering a servo motor.

One of the features of the F-1 system is the practical application of electronic technology, and this is a typical example. The Servo EE Finder improves the full aperture metering mechanism of the Canon F-1 to be able to decide exposure with EE at full aperture. Only Canon has the exclusivity of such a wonderful device which was developed out of a completely new idea of the capabilities of a viewfinder. The original metering and the additional EE device are interdependent as the viewfinder is truly effective only when both functions are perfectly combined as a whole.

The F-1 system includes a Motor Drive Unit for power-driven photography, and the Film Chamber 250 for extending the capabilities of the Motor Drive. Their electric control as well as that of the timer and the various other accessories for remote control has been greatly improved. Through the combination of these accessories, fully automatic photography can be easily performed which is the basic aim of this viewfinder.

### BOOSTER T FINDER

The Booster T Finder is provided with the Electronic Timer for metering in low light levels.

The CdS built in the camera body has a limited metering ability, and is not sufficient under dark conditions. In order to solve this problem, the Booster T Finder was developed to replace the pentaprism.

The Booster T Finder extends metering ability with insufficient light so that exposure can be set by TTL. When it is dark as at night or in the twilight at dawn or dusk, or when not enough light reaches the film plane as in close-ups, macrophotography or photomicrography. When the exposure is set by light metering with the Booster T Finder, a surprising effect is achieved and the picture shows the night scene as bright as daytime.

Since they are factors with great importance in dim-light photography, the shutter speed ranges from 1/60 to 60 seconds and ASA setting is possible up to 12800 with the Booster T Finder. For long-time exposures of more than 3 seconds, the electronic timer automatically controls exposure time by holding the shutter release button during exposure. By switching the metering to the camera body, the Booster T Finder's operation can be changed automatically from dark conditions to bright ones.



**The Cathedral, both Day and Night, Mexico City**

Canon F-1, FD 50mm f/1.4 S.S.C. with Booster T Finder at 15 minute intervals, ASA 64.



# Motor Drive MF



Motor Drive MF

Grip MF





## VERSATILITY IN TIME AND PLACE

TEM stands for Canon's concept of the ideal single lens reflex camera. "T" stands for through the lens metering. "E" stands for Electric Eye control of exposure. And "M" stands for Motor Drive. Metering is, then, performed by TTL, exposure by EE, and film advance by the Motor Drive Unit.

The Motor Drive was first planned to allow a variety of possible applications of the F-1. The new MF system incorporates the latest technological advances.

The MF is a component Motor Drive System designed for maximum flexibility. From the simplest possible form of Motor Drive photography with the F-1, it went on acquiring greater and greater versatility through the addition of various accessories. It can be used with the Film Chamber 250 or with the Servo EE Finder, or with both, with the highest degree of precision and interchangeability.

The driving part of the MF is screwed on in place of the bottom cover of the camera, and the grip is inserted into the bracket on the side of the Motor Drive. The grip, which contains the battery case, is provided with a shutter release button, and film is fed at a speed of up to 3.5 frames per second by using the Motor Drive System.

## Interval Timer L

The Interval Timer L is one of the important accessories Canon developed to increase the range of TEM, since the ability to regulate photographing time in unmanned photography is indispensable for scientific observation. Time can be set at intervals of half a second to 3 minutes, and the shutter release button can be locked under the Interval Timer L's control.

## Remote Switch 60 MF

The Remote Switch 60 MF has a 60cm cord and when pressed it releases the shutter. The shutter release button is locked by sliding the switch. A Light Emitting Diode (LED) verifies the operation.

## Extension Cord E1000

This connection cord is 10 meters long and has a socket for the Remote Switch 60 MF and the Interval Timer. It serves to extend the distance range of remote control.



Steam Locomotive, Hokkaido, Japan  
Canon F-1, FD 300mm f/5.6 S.C. with  
Motor Drive MF, 1/500 of a second,  
at f/5.6, ASA 64.





# High Speed Motor Drive Camera



## THE PURSUIT OF THE FLEETINGEST FORM

In an age in which the still camera has to compete with television in news and sports coverage, single frame high-speed shooting is often indispensable in order to obtain the more dramatic and eye-catching aspects of a given subject in motion, or to offer detailed information that cannot be easily grasped on the TV screen. With this in mind, and in the light of the extremely fast movements involved in winter sports, Canon conceived a remarkable camera out of the general concept of the F-1. Developed exclusively for taking rapidly moving subjects, this High Speed Motor Drive Camera provides shooting speeds from four to nine frames per second, and it is also able to take single frame exposures.

This camera was first developed for reporting the Winter Olympics at Sapporo in 1972, and became the talk of the photographic world on account of its dramatic photographs. It operates almost the same as the F-1 further improved for high speed operation.

It accepts both the FD and the FL series of lenses and one is able to see the subject all the time in its unique viewfinder. In shooting at high speed in order to catch the fleeting process of motion, it is inconvenient if the viewfinder blacks out at the very time of shooting because of the mirror's action. A fixed pellicle mirror, previously adopted in the Pellix, solved this problem.

Its capacity to shoot up to nine frames per second makes it ideal for fast moving subjects required with special exactness and detail.



**Continuous Photography of Diving**

High Speed Motor Drive Camera, FD 100mm f/2.8 S.S.C., 9 frames per second, 1/1000 of a second, at f/4, ASA 64.



# Viewfinder Accessories

The Canon F-1 has adopted an interchangeable viewfinder system. The Eye Level Finder, Waist Level Finder, Servo EE Finder, Speed Finder and Booster T Finder may be interchanged as desired, in a matter of seconds, to satisfy any preference or need. Whichever viewing method may be best suited for a given situation, there is always a way to meet it with the Canon F-1.

Another remarkable feature of the versatility of the Canon F-1 interchangeable viewfinder system is the ready interchangeability of focusing screens. A standard microprism screen, the same as that in the Canon FT QL, is used. Three types, including split-image, all-mat, and section type, are available for use according to purpose.

The Angle Finder A2 and B, Magnifier R, Dioptic Adjustment Lenses, and Eyecup can be attached to the eyepiece.



1. Speed Finder
2. Waist Level Finder
3. Eye Level Finder
4. Angle Finders A2 and B
5. Magnifier R
6. Focusing Screens A, B, C and D
7. Dioptic Adjustment Lenses
8. Eyecup



# The CAT System



## THE CANON AUTO TUNING (CAT) SYSTEM

Guide numbers are essential to decide exposure in flash photography with an ordinary electronic flash but not so with the Canon Auto Tuning (CAT) System which couples the electronic flash with the meter circuit to maintain the proper f/stop at all times.

One is never sure of obtaining the proper exposure in flash photography with an ordinary electronic flash, but the CAT System solves this problem altogether.

In the CAT System the meter needle moves when the charged voltage reaches a certain level and proper exposure can be obtained by matching the needles at any intermediate point between that and peak level. The CAT System has none of the limitations of the ordinary electronic flashes. Photographers do not have to check the neon lamp, focusing distance or f/stop, and all operations can be checked in the viewfinder. Since the electronic flash can be used at less than full voltage, it consumes less battery and shortens the recycling time.

The meter needle (using the warning marks) indicates the distance range in which photography is possible. Built in the F-1 are two different mechanisms for flash photography. One is the 133D automatic electronic flash, CAT System, and with it flash photography can be performed by the matching needle system. The other can accept ordinary types of flash units.

Also, two types of couplers are applicable to this camera, namely, the D for general flash units, and the L for the CAT System.



**The Sound of the Waves**

Canon F-1, FD 35mm f/2 S.S.C., CAT automatic flash control with Canon Speedlite 133D, ASA 64.



# Close-up Photography



- |                              |                            |
|------------------------------|----------------------------|
| 1. Copy Stand 4              | 10. Slide Duplicator       |
| 2. Handy Stand F             | 11. Macrophoto Coupler FL  |
| 3. Extension Tube 6mm-200mm  | 12. Extension Tube FL      |
| 4. Lens Mount Converter A    | 13. Lens Mount Converter B |
| 5. Bellows FL                |                            |
| 6. Bellows M                 |                            |
| 7. Close-Up Lens             |                            |
| 8. Extension Tube M5 M10 M20 |                            |
| 9. FLM 100mm F 4             |                            |

## A METHOD IN NEARNESS

Any of the F-1's lenses can be positioned as close as one likes to the subject by simply drawing it out. However, it is mechanically difficult to put the lens too close to the subject and the image quality tends to deteriorate.

Even the standard lens is designed to be placed at about 0.5m from the subject at the most. Nevertheless, close-up lenses and extension tubes, as well as other accessories are provided to obtain close-up images without any difficulty.

The Extension Tube M Set which protrudes the lens by means of the tube, and the screw-in close-up lens are provided as accessories for close-up photography.

Both can be used separately or combined to perform various low magnifications of close-up photography including the standard life-size photography.

## Macrophotography

For photography with magnifications higher than life-size, the Bellows, which support the lens firmly and change the shooting distance continuously, are provided to simplify shooting and at the same time obtain a higher magnification.

## Close-Up Lenses

These are attachments of the type of convex lenses, which are screwed on the front of the lens just as filters are.

The prefix figure in close-up lenses represents the screw diameter size and the suffix figure represents the closest subject distance at which the head of the lens can be positioned for shooting.

When choosing a lens, both figures should be taken into consideration.

# Photomicrography



1. Microphoto Hood  
2. Photomicro Unit F

## PHOTOMICROGRAPHY

In the measure possibilities for close-up photography and macrophotography are made available, new photographic interests arise in people because they can be used in recording observation of various phenomena and attractive compositions are obtainable with great potentials for color. Particularly close-ups delight photographers because of their characteristic value in revealing secrets and wonders of nature usually beyond the sight of humans. But, the maximum photographic magnification possible in general macrophotography is 10:1, because there are difficulties beyond that ratio due to limitations in performance of the equipment or because suitable photographic materials are not available.

To satisfy the needs for higher magnification in observation photography, the easiest and most reasonable approach is to use microscopes which magnify the actual size of objects up to 2,000 times, and combine them with photographic equipment.

Two types of connection hood are provided for photomicrography with the F-1. The Photomicro Unit F for which the camera section is fixed in position, and the Macrophoto Hood designed so that the position of the camera may be adjusted. Other accessories include the bellows and copy stands to change magnification.



# Canon FD LENSES

## FOR EVERY POSSIBLE PHOTOGRAPHIC NEED

The idea behind the F-1 was not only the development of a new camera but the creation of a complete system which would anticipate and embrace future photographic needs by assimilating the application of the latest technological advances and the newest scientific discoveries related to photography. The Canon F-1 system anticipates new photographic accessories and attachments yet to be developed, because the whole system was conceived precisely on the basis of that adaptability.

Extreme care, as well as a great deal of foresight concerning future developments, have ensured the perfect interchangeability of all attachable and detachable parts.

All the 10,000 parts of the F-1 system were produced under a standard of accuracy of 1/100th of a millimeter in view of the long-term interchangeability that the system demanded, as well as a degree of reliability, automation of operation, and improved image delineation such as no other camera could offer.

The series of interchangeable FD lenses play a major role in the F-1 system. To maintain its superiority in the field of lens performance in the extremely competitive 1970's, Canon has brought forth a series of lenses which have also been manufactured with the same standards of accuracy as the body of the F-1.

The lenses of the F-1 system are the result of the efforts and cooperation of the departments in charge of design, research, production, and survey, and the computer department. High quality and performance were basically the main goals, and specifically a wide range of interchangeable lenses, compact and easy to handle, with image sharpness throughout the whole focusing range.

These lenses were to adopt a newly designed mechanisms (Floating System), as well as new techniques for processing and the practical application of the newest materials. Special lenses were to be developed and multilayer anti-reflection coating was put to practical use. Besides, they all had to have a high resolving power and extremely high contrast.

The challenge that these goals meant was most successfully overcome with the series of FD lenses, opening the way for still newer and better lenses which are under constant testing, planning and research.

One of Japan's leading camera magazines, the "Camera Mainichi", in its annual supplement called "White Paper on Camera Lenses", sets down the general criteria for judging lens quality. In 1971's "White Paper" out of

375 lenses of the different Japanese makes surveyed, Canon's got the top marks.

The publishers asked the Department of Applied Physics of the Faculty of Engineering of the National University of Chiba to conduct this study, and to examine the quality and performance of the lenses, classifying them into 14 categories according to the focal lengths. In this entirely independent survey, Canon's lenses were first in 8 out of the 13 categories it participated in. (There was no Canon entry in the 85mm focal length category).

Canon's lens design techniques also include the processing of huge volumes of design data, original optical theories, and performance appraisals by means of computers. Consequently, all Canon lenses are extremely reliable and provide the best image delineation.

Finally, Canon SLR cameras have adopted the bayonet type of mount since the introduction of the Canonflex in 1959. With it, attaching and detaching the lens is very easy and takes only one third the time required for changing a lens with a screw-in type of mount. The lens is attached and all necessary coupling mechanisms are automatically adjusted.

## CANON'S SUPER SPECTRA COATING AND SPECTRA COATING:

The initials "S.S.C." stand for Super Spectra Coating and "S.C." stands for Spectra Coating. They indicate that the lenses have been treated with a special coating process.

The S.S.C. is the latest multiple coating and S.C. is Canon's traditional Spectra Coating. The lenses with these abbreviations are additionally equipped with the mount lock which simplifies dismounting and mounting operations. They are also equipped with the EE lock mechanism to prevent wrong handling of the aperture ring, while at the same time, the weight of the lens has been reduced to respond to the users' requests. The front frame of the lens has been finished in black color. In order to avoid confusions, please note that these abbreviations will be occasionally used in the following explanation.

**Super Spectra Coating:** This is a multiple coating with which the effect of reducing reflection for the whole area of visible rays has been increased, and a 99.9% transmission factor can be expected. Therefore, it enables you to obtain a print with perfectly natural color, and at the same time, with an excellent effect in eliminating ghost and flare.

The Canon FD lenses are efficiently treated by this method of coating with a particular precision and quality in view.

**Spectra Coating:** This is a hard coating of Canon's original in which purple, magenta, and amber colors are appropriately coated in accordance with the vitreous quality of the lens, and the total color balance is correctly adjusted.

Moreover, this coating produces an effect by no means inferior to those obtained with the multiple coating, and, consequently, after revaluing the performance of the lens, only the ones considered very efficient remained as the S.C.









**Meeting Place in a Village of Samoa**

Canon F-1, Fish-eye 7.5mm f/5.6 S.S.C., 1/125 of a second, at f/8, ASA 25



**A view of the Kasumigaseki Building in downtown Tokyo.**

Canon F-1, Canon Lens TS 35mm f/2.8 S.S.C., 1/30 of a second, at f/8, ASA 64. (Left, ordinary; Right, shifting)



Lens	Type	Angle of View	Aperture Diaphragm Control	Minimum Aperture	Distance Scale		Attachment		Hood	Length		Weight	
					In meters	In feet	Filter	Cap		(mm)	(in.)	(g)	(lb.-oz.)
Fish-eye 7.5mm f/5.6 S.S.C.	Special	180°	Manual	22	—	—	Built-in	Exclusive	—	62.0	2 $\frac{7}{16}$	380	13 $\frac{3}{8}$
Fish-eye FD15mm f/2.8 S.S.C.	Special	180°	Automatic	16	3-0.3	10-1	Built-in	Exclusive	Built-in	60.5	2 $\frac{3}{8}$	485	1-1 $\frac{1}{8}$
FD 17mm f/4 S.S.C.	Super wide-angle	104°	Automatic	22	3-0.25	10-0.9	72	75	—	56.0	2 $\frac{3}{16}$	450	15 $\frac{7}{8}$
FD 20mm f/2.8 S.S.C.	Super wide-angle	94°	Automatic	22	3-0.25	10-0.9	72	75	—	58.0	2 $\frac{1}{4}$	345	12 $\frac{3}{16}$
FD 24mm f/2.8 S.S.C.	Super wide-angle	83°	Automatic	16	3-0.3	10-1	55	C-55	†BW-55B	52.5	2 $\frac{1}{16}$	330	11 $\frac{5}{8}$
FD 28mm f/3.5 S.C.	Wide-angle	75°	Automatic	16	3-0.4	10-1.5	55	C-55	†BW-55B	43.0	1 $\frac{11}{16}$	250	8 $\frac{13}{16}$
*FD 35mm f/3.5 S.C.	Wide-angle	64°	Automatic	16	3-0.4	10-1.5	55	C-55	†BW-55A	49.0	1 $\frac{15}{16}$	280	9 $\frac{7}{8}$
TS 35mm f/2.8 S.S.C.	Special(Tilt & Shift)	64°/79°	Manual	22	3-0.3	10-1	58	C-58	†BW-58	74.5	2 $\frac{15}{16}$	545	1-3 $\frac{1}{4}$
*FD 35mm f/2 S.S.C.	Wide-angle	64°	Automatic	16	3-0.3	10-1	55	C-55	†BW-55A	60.0	2 $\frac{3}{8}$	370	13 $\frac{1}{16}$
FD 50mm f/3.5 S.S.C.	Macro	46°	Automatic	22	3-23.2(cm)	10-9.1(in)	55	C-55	—	59.5	2 $\frac{3}{8}$	310	10 $\frac{5}{16}$
*FD 50mm f/1.8 S.C.	Standard	46°	Automatic	16	10-0.6	30-2	55	C-55	†BS-55	44.5	1 $\frac{3}{4}$	255	9
*FD 50mm f/1.4 S.S.C.	Standard	46°	Automatic	16	10-0.45	30-1.5	55	C-55	†BS-55	49.0	1 $\frac{15}{16}$	330	11 $\frac{5}{8}$
FD 55mm f/1.2 S.S.C.	Standard	43°	Automatic	16	10-0.6	30-2	58	C-58	†BS-58	52.5	2 $\frac{1}{16}$	510	1-2
FD 55mm f/1.2 S.S.C. ASPHERICAL	Standard	43°	Automatic	16	10-0.6	30-2	58	C-58	†BS-58	55.0	2 $\frac{3}{16}$	575	1-4 $\frac{5}{16}$
FD 85mm f/1.8 S.S.C.	Telephoto	29°	Automatic	22	—	—	55	C-55	†BT-55	57.0	2 $\frac{1}{4}$	445	15 $\frac{1}{2}$
FLM 100mm f/4	Macro	24°	Automatic	22	—	—	48	50	T-50	43	1 $\frac{11}{16}$	220	7 $\frac{3}{4}$
FD 100mm f/2.8 S.S.C.	Telephoto	24°	Automatic	22	10-1	30-3.5	55	C-55	†BT-55	57.0	2 $\frac{1}{4}$	360	12 $\frac{11}{16}$
FD 135mm f/3.5 S.C.	Telephoto	18°	Automatic	22	30-1.5	100-5	55	C-55	†BT-55	83.0	3 $\frac{1}{4}$	465	1-3 $\frac{3}{8}$
FD 135mm f/2.5 S.C.	Telephoto	18°	Automatic	22	30-1.5	100-5	58	C-58	Built-in	91.0	3 $\frac{9}{16}$	630	1-6 $\frac{1}{4}$
FD 200mm f/4 S.S.C.	Telephoto	12°	Automatic	22	30-2.5	100-8	55	C-55	Built-in	133.0	5 $\frac{1}{4}$	675	1-7 $\frac{15}{16}$
FD 300mm f/5.6 S.C.	Telephoto	8°	Automatic	22	50-4	200-13	58	C-58	Built-in	173.0	6 $\frac{13}{16}$	1125	2-7 $\frac{11}{16}$
FD 35-70mm f/2.8-3.5 S.S.C.	Zoom	64°-31°	Automatic	22	10-0.3	30-3.5	58	Exclusive	W-69	120	4 $\frac{3}{4}$	575	1-4
FD 100-200mm f/5.6 S.C.	Zoom	24°-12°	Automatic	22	30-2.5	100-8	55	C-55	Built-in	173.0	6 $\frac{13}{16}$	765	1-11
FD 85-300mm f/4.5 S.S.C.	Zoom	29°-8°	Automatic	22	30-2.5	100-8	Series IX	Exclusive	Built-in	247.5	9 $\frac{3}{4}$	1940	4-4 $\frac{1}{2}$
FL 300mm f/5.6 FLUORITE	Telephoto	8°	Automatic	22	50-4	200-13	58	60	Built-in	168.0	6 $\frac{5}{8}$	850	1-13 $\frac{5}{16}$
FL 500mm f/5.6 FLUORITE	Super-telephoto	5°	Automatic	22	200-10	600-33	95	106	Built-in	300.0	11 $\frac{13}{16}$	2700	5-15 $\frac{1}{4}$
**FL 400mm f/5.6	Super-telephoto	6.2°	Automatic	32	30-4.5	100-15	††48	90	Exclusive	338.0	1'1 $\frac{15}{16}$	3890	8-9 $\frac{3}{16}$
**FL 600mm f/5.6	Super-telephoto	4.1°	Automatic	32	100-10	300-35	††48	125	Built-in	448.0	1'5 $\frac{5}{8}$	5000	11-3 $\frac{3}{8}$
**FL 800mm f/8	Super-telephoto	3.1°	Automatic	32	100-18	300-60	††48	125	Built-in	508.0	1'8	5360	11-13 $\frac{1}{16}$
**FL 1200mm f/11 S.S.C.	Super-telephoto	2.1°	Manual	64	300-40	1000-130	††48	125	Built-in	853.0	3'3 $\frac{9}{16}$	6200	13-11

\* Equipped with a coupling pin to Canon Automatic Tuning System.

\*\* Front component interchangeable type. Focusing adapter (1-component, 2-element, FL automatic diaphragm, with A-M ring).

† FD lens hoods are of bayonet mount.

†† Filter is of insertion type with holder.

■ The Canon Lens FL 300mm f/2.8 S.S.C. FLUORITE is available by special order.



## Technical Data of the Canon F-1

**Type:** 35mm Single-Lens Reflex camera with focal plane shutter. Picture size; 24 x 36mm.

**Lens:** Interchangeable lens group of FD series with full aperture signal lever.

**Standard Lens:** Canon FD 55mm f/1.2 S.S.C., FD 50mm f/1.4 S.S.C., FD 50mm f/1.8 S.C.

**Viewfinder:** Removable pentagonal prism viewfinder. The Eye-Level Finder, Waist-Level Finder, Servo EE Finder, Booster T Finder and Speed Finder may be interchanged as desired.

**Viewfinder Attachments:** Angle Finder B, Magnifier, Dioptic Adjustment Lenses, Eyecup.

**Focusing Screen:** Using Fresnel lens, standard focusing screen with microprism screen rangefinder and three other interchangeable kinds. With metering beam-splitting condenser.

**Field-of-View:** 97% of actual picture area. 0.77x with standard 50mm lens at infinity.

**Viewfinder Information:** Meter needle and aperture needle, improper exposure warning red mark, fixed dot for stopped-down metering use and battery check mark, shutter speed scale, out of meter functioning range warning signal.

**Dioptic Adjustment Lenses:** Standard — 1.2 diopter (R - 1). Interchangeable with R + 3, R + 2, R + 1, R 0, R - 2, R - 3, and R - 4.

**Mirror:** Quick return mirror with shock-absorbing mechanism. Mirror can be fixed in upper position. Aperture is manually operated when mirror is fixed in upper position.

**Lens Mount:** Bayonet type FD mount. FL and R series of lenses mountable.

**Function:** FD lenses; Full aperture metering, coupled with automatic diaphragm. FL lenses; Stopped-down metering, coupled with automatic diaphragm. R lenses; Stopped-down metering, manually operated diaphragm.

**Shutter:** Focal plane shutter using super thin titanium screen. Designed for elimination of functioning noise. Shutter release button can be locked.

**Shutter Speed Dial:** Single shaft non-revolving type with shutter scales and ASA film speed scales. Two coupling pins for setting attachments are provided.

**Shutter Speeds:** B, 1—1/2000. Multiple series. Equiinterval index. X contact 1/60.

**Film Speed Scale:** ASA 25—2000.

**Self-Timer:** Built in. Activate with shutter release button. Approx. 10 sec. time lag. Self-timer lever is used in common as stopped-down functioning lever.

**Exposure Adjusting Mechanism:** Coupled to shutter speeds, film speeds and f/stop. Match needle type TTL full aperture metering mechanism. Wide range, highly sensitive special CdS photocell. Central area metering system with beam-splitting

condenser positioned in rear. Stopped-down metering possible. Fixed dot type metering using stopped-down functioning lever. Locking of the lever possible.

**Exposure Meter Coupling Range:** With ASA 100 film, EV 2.5 (f/1.2 at 1/4 sec.)—EV 18 (f/11 at 1/2000 sec.). Meter information window turns red when exposure is outside of coupling range.

**Meter Battery:** One 1.3v M20 (#625) mercury battery used.

**Battery Checker:** Built in. Check at ASA 100, shutter speed at 1/2000 sec.

**TTL Full Aperture Metering System EE:** Uses exclusive Servo EE Finder and Battery Case in combination. Full aperture metering with FD lens. Shutter priority type EE. Functioning range; with ASA 100 film, EV 2.5 (f/1.2 at 1/4 sec.)—EV 18 (f/11 at 1/2000 sec.).

**Insufficient Light Metering:** Metering possible between ASA 100 film EV 15 (f/22 at 1/60 sec.) and EV - 3.5 (f/1.2 at 15 sec.) with use of exclusive Booster T Finder.

**Synchronized Flash:** FP and X contact. Automatic time lag adjusting type.

**Flash Socket:** On side of body. Two contacts on film rewind knob for flash circuit for directly connected adapter, and meter circuit.

**Canon Auto Tuning (CAT) System:** Diaphragm control by recharge completion signal and focusing distance signal. Proper aperture is established by the meter matching needle system through connection of the Speedlite 133D, Flash Coupler L, Flash Auto Ring A2 and B and prescribed FD 50mm f/1.4 S.S.C., FD 50mm f/1.8 S.C., FD 35mm f/2 S.S.C., or FD 35mm f/3.5 S.C. lens.

**Synchronizing Range:** 1/2000—1/25 sec. and 1/30 sec. or under; FP class. 1/60 sec. or under; Speedlite. 1/30 sec. or under; M, MF class.

**Film Loading:** With multi-slit film spool.

**Film Winding:** Short-stroke winding possible. Single operation 180° winding lever. Play: 15°.

**Film Rewinding:** Performed by rewind button and crank.

**Double Exposure:** Possible by operating film rewind button.

**Back Cover:** Crank pull-up type. Removable for Film Chamber 250.

**Bottom Cover:** Motor Drive Unit can be attached after removing bottom cover.

**Frame Counter:** Self-resetting type activated by opening back cover.

**Accessory Shoe:** Exclusive. Flash Coupler D, Flash Coupler L and other couplers can be attached.

**Size:** 98.7 x 146.7 x 43mm (3-7/8" x 5-3/4" x 1-11/16").

**Weight:** Body; 820g (1.80 lbs.). With FD 50mm f/1.4 S.S.C. Lens; 1,180 g (2.60 lbs.).

Subject to alterations.

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